

CLAIMS

1. An extendable/retractable column comprising:

at least three linked sections, each linked section including a plurality of individual sections pivotally connected to one another in end-to-end relationship, each linked section positioned adjacent to at least two other linked sections;

each individual section having an inner surface, a first end and a second end and a connection tab at the first end of the individual section, the connection tab extending inwardly of the inner surface of the individual section; and

each individual section including a tab receiving surface at the second end of the individual section for engagement by the connection tab of an individual section of one of the adjacent linked sections.

2. The column of claim 1, further comprising a linear drive mechanism engaging each linked section, the linear drive mechanism operable to extend and retract the linked section which it engages so that the tabs of each individual section of a linked section engage and disengage, respectively, tabs of individual sections of the adjacent linked sections.

3. The column of claim 2, wherein the linear drive mechanism engages the inner faces of the sections of each linked sections.

4. The column of claim 2, wherein the linear drive mechanism includes a plurality of infinite length power nuts, each power nut including a plurality of lugs, each lug including a first engagement area configured to engage a rotating threaded power screw centrally mounted with respect to the linked sections, each lug further including second engagement surfaces configured to engage the inner faces of sections of two adjacent linked sections.

5. The column of claim 4, wherein the inner faces of the sections include a plurality of elongated slots configured to engage the second engagement surfaces of the lugs of the infinite power nut, the elongated slots defining a length generally oriented transverse to a direction of extension and retraction of the column and a width generally oriented parallel to the direction of

extension and retraction, the elongated slots defining a narrower width positioned toward an outer side of the section and a wider width opposite the narrower portion.

6. The column of claim 4, wherein a single power screw drives each of the plurality of power nuts.
7. The column of claim 2, wherein the drive mechanism includes a plurality of linear drive members and each linear drive member engages the inner face of sections of two of the linked sections.
8. The column of claim 7, wherein the column includes three linked sections and three linear drive members, the linked sections positioned to so that the column has a triangular cross-section, the linear drive members are positioned in the vertices of the triangle formed by the linked sections and the linear drive member in each vertex engages the inner faces of the sections of the two linked sections forming that vertex.
9. The column of claim 7, wherein the linear drive members include threaded sections which engage angled linear slots in the inner face of the sections of each linked section.
10. The column of claim 1, wherein the individual sections includes an outer surface parallel to and spaced apart from the inner surface.
11. The column of claim 1, further comprising an outer ring positioned about the linked sections, the outer ring including a roller configured to engage each of the linked sections as the connection tab of an individual section of a first linked section engages the tab receiving surface of an individual section of a second adjacent linked section.
12. An extendable/retractable column comprising:
 - at least three linked sections positioned adjacent each other;
 - a plurality of drive slots in at least one of said linked sections;

a linear drive member rotatable about an axis generally parallel to the column, said linear drive member including a power screw configured to engage the drive slots;

wherein rotation of the power screw of the linear drive member extends or retracts at least one of the linked sections and the plurality of linked sections engage each other to form the column as the linked sections are extended; and the plurality of linked sections disengaging each other as the linked sections are retracted.

13. The column of claim 12, wherein the linked sections include an inner surface with the drive slots formed therein and also include an outer surface parallel to and spaced apart from the inner surface.

14. The column of claim 12, further comprising an outer ring positioned about the linked sections as the linked sections are engage each other to form the column and the outer ring includes a roller positioned adjacent each linked section.

15. The column of claim 14, wherein the outer ring engages the linked sections as the linked sections are extended by the linear drive member and each roller of the outer ring holds one of the linked sections in position to engage the adjacent linked sections.

16. An extendable/retractable column comprising:

a plurality of linked sections each comprised of a plurality of individual sections pivotally connected to one another in end-to-end relationship, each of the individual sections including a first and second end and a pair of opposing sides;

each individual section having a plurality of projections extending outwardly from each of its sides, said projections of a first individual section of a first linked section engaging the projections of a second individual section of a second linked section when the first and second linked sections are interconnected with one another to form the column.

17. An extendable/retractable column comprising:

at least three linked sections, each linked section comprised of a plurality of individual sections pivotally connected to one another in end-to-end relationship;

each individual section comprised of a one-piece integral structural unit.

18. The column of claim 17, wherein each individual section includes a pair of opposing sides, and opposing top and bottom ends, the sides of each individual section including at least one tab configured to engage the side of an individual section of an adjacent linked section, and one of the ends of each individual section of a section chain including a tab configured to be received by a tab receiving surface of the opposite end of the next individual section of the section chain.

19 The column of claim 18, wherein the column further comprises an outer ring positioned about the linked sections, the linked sections extendable through the outer ring and the tabs of the sides of individual sections engaging the sides of individual sections of adjacent linked sections as the linked sections extend through the outer ring.